Long-term Outcomes after Esophagectomy in Octogenarians

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Objectives: Advanced age is often used as a discriminating factor when considering candidacy for oncologic resection. We sought to evaluate long-term outcomes in octogenarians treated with esophagectomy.

Materials and Methods: All patients who underwent esophagectomy for esophageal cancer (2007-2017) were identified from our institutional Society of Thoracic Surgeons database. Patients were stratified by age greater than or lesser than 80, and primary outcomes of interest were overall survival, 90-day mortality, and 1-year mortality. Long-term survival was assessed with Kaplan-Meier analysis and risk-adjusted analysis of long- term survival was performed using a Cox-Proportional Hazards model.

Results: 398 patients underwent esophagectomy during the study period and 19 (4.8%) were greater than 80 years old at the time of operation. No significant differences in demographics, comorbidities, or functional status were identified between groups. Despite equivalent clinical staging, fewer octogenarians received neoadjuvant therapy (Table). Pathologic downstaging was less common in octogenarians (28% vs. 60%, $p<0.01$), who also had more advanced pathologic disease stage (Table). Postoperative complication rates were equivalent. There were no differences in 90-day, 1-year, or long-term survival (Figure) between younger and octogenarian patients. On risk-adjusted analysis, clinical stage and functional status were significant predictors of long-term survival, but octogenarian status was not.

Conclusions: Well-selected octogenarians who undergo esophagectomy achieve similar long-term outcomes as their younger counterparts. However, decreased utilization of neoadjuvant therapy results in more advanced pathologic staging. Advanced age, in the absence of other comorbidities, should not be used as a discriminating factor when considering patients for esophagectomy.

Table 1. Comparison of patient characteristics and survival time hazard ratio stratified by age, functional status, disease stage, and therapy

Variable	Non-octogenarians Age <80 y.o	Octogenarians Age ≥ 80 y.o.	*p*-value	HR	*p*-value: HR
Median age (years)	62.0 ± 9.8	81.9 ± 1.4	<0.01	0.96	0.91
	Incidence n (%)				
Male sex	316 (83.4)	18 (94.7)	0.33	1.10	0.70
Zubrod score			0.14	1.34	0.02
0	97 (25.6)	10 (52.6)			
1	248 (65.4)	9 (47.4)			
2	27 (7.1)	0 (0.0)			
3	6 (1.6)	0 (0.0)			
4	1 (0.3)	0 (0.0)			
Clinical Stage			0.55	1.46	<0.01
cStage 0	15 (4.3)	0 (0.0)			
cStage I	59 (16.9)	6 (33.3)			
cStage II	65 (18.6)	3 (16.7)			
cStage III	199 (57.0)	9 (50.0)			
cStage IV	11 (3.2)	0 (0.0)			
Neoadjuvant chemoXRT	207 (54.6)	5 (26.3)	0.02	1.15	0.51
Operative Approach			0.36	0.71	0.28
Transthoracic	337 (88.9)	16 (84.2)			
Three-hole	29 (7.7)	3 (15.8)			
Transhiatal	13 (3.4)	0 (0.0)			
Pathologic stage			0.02		
pStage 0	67 (19.5)	1 (5.3)			
pStage I	115 (33.5)	8 (42.1)			
pStage II	91 (26.5)	3 (15.8)			
pStage III	63 (18.4)	4 (21.0)			
pStage IV	7 (2.0)	3 (15.8)			

Figure 1. Comparison of survival between patient groups